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A national clinician–educator program: a model of an effective community of practice

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***Background*:** The increasing complexity of medical training often requires faculty members with educational expertise to address issues of curriculum design, instructional methods, assessment, program evaluation, faculty development, and educational scholarship, among others.

***Discussion*:** In 2007, The Royal College of Physicians & Surgeons of Canada responded to this need by establishing the first national clinician–educator program. We define a clinician–educator and describe the development of the program. Adopting a construct from the business community, we use a community of practice framework to describe the benefits (with examples) of this program and challenges in developing it. The benefits of the clinician–educator program include: improved educational problem solving, recognition of educational needs and development of new projects, enhanced personal educational expertise, maintenance of professional satisfaction and retention of group members, a positive influence within the Royal College, and a positive influence within other Canadian academic institutions.

***Summary*:** Our described experience of a social reorganization – a community of practice – suggests that the organizational and educational benefits of a national clinician–educator program are not theoretical, but real.

Keywords: *faculty development*; *program evaluation*; *educational design*; *graduate medical education*; *education network*

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Increasing numbers of clinical faculty members in medical schools are becoming involved in medical education as a major professional endeavor. Many are excellent teachers and able program administrators; they perform these tasks while continuing to concentrate on their clinical and scholarly activities. However, some faculty members have chosen to focus their academic careers on medical education, concentrating on gaining proficiency in educational skills, spending a major portion of their time in or leading educational activities, and being known to their colleagues as experts who can provide evidence-based advice and direction for educational issues. In many centers these individuals are known as 'clinician–educators.'

We define a clinician–educator as a physician with formal training (e.g., graduate degree, robust diploma program, or formal fellowship) in medical education, providing consultative advice for educational projects undertaken by faculty in the health professions.

> Expertise is across [six] key domains: needs assessment, educational objectives, curriculum design, instructional methodologies, assessment (i.e., the progression towards competence of learners), and evaluation (i.e., the effectiveness of a curriculum) ... Perhaps the primary distinguishing characteristic of a clinician–educator is that they produce scholarship related to their educational activities. (1)

Clinician–educators may have roles in hospital and university divisions and departments as directors of education programs. They act as curriculum designers, innovative teachers, and expert assessors. They apply their skills across traditional boundaries (e.g., between programs), sharing their expertise with others, and disseminate their original ideas and projects in a scholarly manner (e.g., conference presentations, grand rounds, publications, etc.). Often clinician–educators are geographically dispersed, even within their own institutions, with little opportunity for collaboration, mutual support,

or sharing of ideas. Little has been written about effective strategies for developing and supporting a network of CEs. We describe a novel community-of-practice model for the development and deployment of CEs as part of a national initiative.

The purpose of this manuscript is to describe what we believe to be the first national clinician–educator program. First, we define a community of practice (CoP), using this framework to describe the organization of the Royal College of Physicians & Surgeons of Canada national clinician–educator program. Then we discuss the strengths of the clinician–educator program, using examples from the program. Finally, we conclude with lessons learned, which may inform other organizations seeking to develop their own clinician–educator program.

Defining a community of practice (CoP)

Communities of practice (CoP) have been defined as 'groups of people ... bound together by shared expertise and passion for a joint enterprise' (2), however, our experience suggests that this definition is incomplete. Historically, such groups have always existed. CoPs are the legacy of guilds from the middle ages (3). Guilds served the trades in two important ways: ensuring exclusive practice via control of practitioners of the trade and "more importantly," providing a structure for the education of future practitioners via an apprenticeship.

Informally, CoPs have a long history within large organizations including hospitals, universities, and medical societies, as a means of negotiating the bureaucratic expanse of complex organizations. (For example, residency directors within a particular specialty may share assessment tools in order to meet the requirements of accreditation bodies.) Recent technological advances such as electronic bulletin boards, e-mail lists, blogs, wikis, and so forth have helped to promote a network of relationships within large institutions that have typically been divided along organizational lines (4). While somewhat useful, these forums are often no more than advanced platforms for information dissemination (5). A true CoP does more than simply transmit information, rather it supports the (communal) development of new ideas. Thus, a more functional definition of a CoP is: 'the collaborative, informal networks that support professional practitioners in their efforts to develop shared understandings and engage in work-relevant knowledge building' (6).

CoPs classically involve three key elements – 'community,' 'practice,' and 'domain.' First, 'community' is the essential element of a CoP. A community emphasizes self-selection, rather than forced organizational affiliations. It builds out of peer-recognized ability and talent that is desired by the community to achieve its goals. The synergy of multiple individuals collectively contributing to and building on shared ideas is maximized. Finally, a community is able to move outside of the formal organizational frameworks that dictate lines of communication and responsibility. The community develops from a nucleus of peers who formally articulate and promote existing shared connections. Subsequent members join the community via invitation.

Second, 'practice' refers to the specific expertise (i.e., knowledge and skills) required for membership. A CoP is a dynamic organizational structure, thus, membership requires action (i.e., practice). While core competencies are common among all members, particular expertise is not universal. Rather, inclusion is based on whether an individual brings a practice that is required, valued, and contributory to the knowledge creation of the CoP. As well, individuals who are not yet 'expert' may join the CoP. Their educational development is a form of legitimate peripheral participation. This ensures both community renewal and evolution.

Finally, 'domain' refers to the specific content area addressed by the CoP. While the practice (e.g., teaching) of group members may apply to numerous areas (e.g., primary school, undergraduate medicine), the domain of a CoP focuses the goals to a particular area. Individual people may possess abilities that are appropriate for multiple CoPs. However, the domain ensures focus and promotes action by members of a CoP.

Describing the Royal College clinician–educator program

The Royal College of Physicians & Surgeons of Canada (Royal College) is Canada's national medical education organization with responsibility for the accreditation, curriculum, policy, examination, and certification standards for 63 specialty disciplines (7). In 2007, the Royal College developed a national clinician–educator program. The goals of the clinician–educator program are listed in Table 1.

The initial organizational structure was not a CoP. Each clinician–educator was required to independently report to the Royal College's associate director of

Table 1. Goals of the Royal College clinician–educator program

To support the implementation of the CanMEDS initiative
To enhance the educational design capacity of the Royal College
To enhance the high-level medical education skills capacity of multiple medical schools in Canada
To improve the quality of Royal College educational research and publications
To facilitate greater faculty development in Canada
To enhance the dissemination of Royal College educational scholarship
To provide a highly visible career platform for emerging dynamic medical educators

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education. Contracts and projects were individualized; there was minimal connection between the first clinician–educators. What quickly became apparent was that this traditional organizational framework – individual, external consultants working in silos with separate agendas – was ineffective. This traditional structure did not take advantage of the potential synergies between clinician–educators. Thus, early in the development of the Royal College clinician–educator program, a new organizational framework quickly evolved, a CoP.

The stimulus for this evolution to a CoP originated from the clinician–educators, although it was not originally labeled as such but recognized later. A desire to share particular problems and to obtain input and opinions from experienced educator colleagues was perhaps the impetus for the group's evolution to a CoP. Each clinician–educator recognized their peer as possessing particular complementary abilities that could enhance their own learning and practice.

From an original core of three, additional clinician–educators were identified using a snowball technique (existing clinician–educators identified potential candidates from their professional sphere of practice). After a formal interview process, potential candidates are informally vetted by existing clinical–educators, thus highlighting the intrinsic 'self-selection' that informs a CoP, rather than a mandated working group that is often part of bureaucratic structures. Over 4 years, nine clinician–educators have been recruited to the program. The demographics of the clinician–educators are listed in Table 2.

Program oversight is via the Royal College's associate director of education, who ensures integration of the program with the other missions of the Royal College. All projects are coordinated via a central program manager, located at the Royal College's head office. Individual clinician–educators lead specific projects based on experience, availability, and interest. However, many projects are supported by more than one clinician–educator; and nearly all projects have input and editorial advice from the entire CoP. Table 3 provides examples of the educational projects carried out through the program. Finally, each clinician–educator undergoes an annual performance review facilitated by the associate director of education and the program manager.

Administrative support is supplied by seven program assistants, located at the Royal College's head office. Resources are shared via a secure electronic portal. Monthly teleconferences ensure clear communication among members of the geographically dispersed group. During teleconferences members update each other on current projects, collectively plan for future projects, and request help with project challenges. A yearly in-person retreat is scheduled to revisit the goals of the program, provide continuing professional development, and strengthen the relationship of the CoP. Face-to-face meetings are arranged on an ad hoc basis according to need and availability.

Table 2. Clinician–educator demographics

Clinical specialty	• Emergency medicine • General internal medicine • Hepatobiliary surgery • Psychiatry • Physical medicine and rehabilitation • Rheumatology
Home institution	• McGill University • McMaster University • University of Alberta • University of Calgary • University of Ottawa • University of Toronto
Previous/current academic positions	• Assistant Dean, Faculty Development • Associate Dean, Postgraduate Medical Education (2) • Departmental Director of Education (2) • Divisional Director, Continuing Professional Development • Division Director (2) • Residency Director (2) • Specialty Journal Editor, Education (3) • Undergraduate Clerkship Director
Years in clinical practice	• 2–20 years

Benefits of the clinician–educator community of practice (CoP)

Over time we have identified six key benefits that specifically arose as a result of the CoP. The strengths of CoPs in general have previously been described (8); the following relate specifically to the Royal College's clinician–educator CoP.

Improved problem solving

Improved problem solving was a natural derivative of the development of the clinician–educator CoP. Although the domain of the CoP (i.e., postgraduate medical education) was a common theme among the clinician–educators, the practice (i.e., educational skills and experience) was varied. The CoP fostered informal collaboration between clinician–educators to overcome educational challenges that any one member faced. During monthly teleconferences or via off-line communication (e.g., one-on-one

Table 3. Clinician–educator projects (2007–2010)

Project	Topic	Scope
Train-the-trainer (TTT) faculty development multiday courses	• Collaborator role • Lifelong learning • Communicator role • Health advocate role • Professional role • Residents as teachers • Manager role	• National – faculty representation from all 17 Canadian medical schools • 380 faculty trained as local (university) champions
Educational workshops	• Curriculum planning • Assessment • Competency-based medical education • Teaching CanMEDS • Implementing CanMEDS • Patient safety competencies	• Regional/National – faculties of medicine; national specialty organizations • 230 workshops given
Conference development	• National Resident Leadership Summit (NRLS) • International Conference on Residency Education (ICRE) • Saudi Arabian Conference on Residency Education (SACRE)	• National/International • NRLS is the first national resident leadership conference • ICRE is the largest PGME conference in the world • SACRE is the first medical education conference in Saudi Arabia
Conference presentations	• Assessment • Competency-based medical education • Teaching CanMEDS • Implementing CanMEDS • Leadership	• National/International – Canadian Conference on Medical Education; International Conference on Residency Education; Association of Medical Educators of Europe • >100 abstracts submitted
Accreditation standards	• Objectives of training • Standards of accreditation • Specialty training requirements • Final in-training assessment form	• National • >250 documents reviewed
Educational consults	• Ad hoc	• Regional • ~5 per year
Facilitation of other CoPs	• Health advocate special interest group • Collaborator special interest group • Communicator special interest group • Professionalism special interest group • Lifelong learning special interest group • Manager special interest group • Resident as teachers special interest group	• National
In-house publications	• Patient Safety Competencies Guide • TTT Collaborator Manual • TTT Lifelong Learning Manual • TTT Communicator Manual • TTT Health Advocate Manual • TTT Health Advocate Video • TTT Professionalism Manual • TTT Residents as Teachers Manual • TTT Manager Manual • Assessment Tools Handbook • CanMEDS Physician Health Guide • The Research Guide	• National/International • >30,000 copies sold/distributed

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Table 3 (*Continued*)

Project	Topic	Scope
	• Collaborator Educational Resource Guide • CanMEDS Pocketcard Series • Emergency Medicine • Bedside Teaching Pocket Card • Designing Clinical Education Guide (in development) • Program Director Handbook (in development)	
Education scholarship	• Define competency-based medical education via the International CBME Collaborators • Review/host 'Best Practices in Medical Education' on a searchable web-based database • Program evaluation of the TTT initiative • Canadian needs assessment of medical educators • Analysis of the future of medical education in Canada (FMEC) • Medical education diploma program (in development)	• National/International • Theme issue – *Medical Teacher* 2010 • 15 peer-reviewed journal articles • >5,000 searches of the 'Best Practices' database • Policy 'White' paper – FMEC

phone conversations/e-mail exchanges) challenges were addressed more efficiently, drawing on the varied clinical and academic backgrounds within the CoP.

An example of improved problem solving was the development of an education consultation program. The process was formalized using an intake form managed by program assistants located at the Royal College. Requests for educational consults from residency training programs or hospital departments were triaged by the program manager. Regardless of the individual delegated to the consultation, the whole CoP participated in the development of the educational plan.

Recognition of educational needs and development of new initiatives

Although the deliverables for each clinician–educator and the goals of the program as a whole were clearly delineated, as the CoP took shape, new projects were spontaneously undertaken (and subsequently endorsed by the associate director of education). The CoP permitted the development of a broader perspective of the issues facing postgraduate medical education in Canada. Rather than having a narrow and potentially skewed view of the educational agenda shaped by a personal frame of reference (e.g., an individual clinician–educator's specific projects), the community permitted multiple perspectives. This broader outlook helped to identify education gaps and opportunities for greater impact.

One of the particular needs that had not been previously identified prior to the formation of the clinician–educator CoP was the dearth of educational training for frontline clinician–teachers in Canada, beyond the informal skills acquired in their positions as faculty members or residency program directors. CoP members identified this issue based on the volume of education consultation requests and experiences with participants in the train-the-trainer faculty development programs. The CoP conceived a Medical Education Diploma Program (currently in development) to meet this need. Without the perspective of a CoP this need would neither have been readily identified nor addressed at a national level.

Enhanced educational expertise

The self-selection process of a CoP ensures common and required skills. However, outside these common areas of medical education, the skill spectrum and educational experiences of clinician–educators vary. As shared problem solving (requiring the input of multiple individuals) and new CoP-initiated projects took place, individuals encountered novel educational issues. Although this was a challenge for some, very quickly the opportunity to develop new skills was enthusiastically endorsed. The shared learning that occurred within the CoP served two functions: personal professional development as new skills were added to an individual's educational

repertoire, and improved collective performance of the CoP as these skills were employed.

It should be noted that the learning of new skills was not an inverse function of years of medical education experience. Rather, the CoP offered experienced clinician–educators with senior academic positions in their home institutions a faculty development environment tailored to their needs and interest. Experienced academics may greatly benefit from the learning that accompanies a CoP, for it is this population least served by traditional faculty development initiatives offered by universities and other educational institutions (9).

An example of the development of new skills precipitated by the CoP involves communication skills. One of the projects undertaken by the clinician–educator CoP was the development of a national train-the-trainer faculty development workshop in communication skills. The mandate of this program was to produce local champions at each Canadian medical school to promote the teaching and assessment of the CanMEDS Communicator Role. [The CanMEDS framework defines the essential competencies of competent physician practice and directs postgraduate medical training in Canada. The central Medical Expert Role is supported by six additional roles: Communicator, Collaborator, Manager, Health Advocate, Scholar, and Professional (10)]. While all of the clinician–educators involved in the train-the-trainer program had significant experience in faculty development, there were varying levels of expertise in the content domain of communication skills. However, over the year-long process of developing this curriculum, novice communication skills educators acquired new skills that further enhanced their practice. In fact, one of the 'novices' subsequently went on to lead a Canadian communication skills symposium that sought to outline the Communicator Role across the educational spectrum (i.e., undergraduate to physician in-practice).

Enhanced engagement and talent retention

A career in academic medicine is attractive because it provides access to stimulating ideas and interesting people. While clinical medicine affords greater remuneration with less investment of time, the attraction of the clinician–educator CoP is an opportunity to engage in important and interesting educational issues with like-minded peers. The community permitted a pooling of resources to tackle issues beyond the capacity of a single individual. Thus, the educational projects undertaken by the clinician–educator CoP were beyond the scope that any one individual could mount within their own local academic portfolio.

Yearly performance reviews unanimously highlighted among all of the clinician–educators that the CoP, which was informally recognized in the second year of the program, was a key reason for the renewal of annual contracts. Publications arising from shared endeavors of the CoP also provided tangible outputs for the academic advancement of individuals. Recognizing that the clinician–educator program is only 4 years old, it is still significant to note that staff retention is at 100% and growth is 300%.

Positive influence on the organization

Perhaps the most unanticipated outcome of the clinician–educator CoP was the influence upon the Royal College at large. The influence of a CoP is not limited merely to its particular community but may informally disseminate throughout the larger institution.

The success of the clinician–educator CoP was informally promoted within the Royal College at meetings, during budgetary deliberations, and via internal memorandums. The benefits outlined above led to the establishment of a second program with an educational agenda that focused on physicians in-practice rather than postgraduate medical education. Certainly a CoP cannot be administratively constituted in a top down fashion, as this type of organizational arrangement is counter to the entire nature of a CoP. However, the Royal College acknowledged the beginnings of a CoP within a physician in-practice portfolio and began to promote and provide administrative support to facilitate its development.

Influence outside the organization

Each clinician–educator has taken the concepts and benefits of the CoP back to their home academic institution and to other national medical education organizations. This has provided further opportunities for dissemination. Additionally, this process has raised the local profile of the involved clinician–educators, increasing the formal (and informal) academic recognition of the clinician–educator role. Two organizations (an education academy and an American clinical specialty board) have approached the clinician–educator CoP for administrative details.

Challenges in developing a clinician–educator community of practice (CoP)

Over the course of this initiative we have learned six lessons that may assist others in developing a clinician–educator program.

It takes time

It has required nearly 4 years for our clinician–educator program to develop into an effective CoP. Adoption and adaption to the cultural norms, integration of individual academic and personal cultures, development of a shared lexicon, and formation of responsibilities within the program could not be achieved immediately. Unlike traditional organizational frameworks that rely on structures dictated by policy, a CoP develops in a shared,

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adaptive process. Failure to acknowledge the necessary development time may lead an organization to prematurely deem a CoP unsuccessful.

Balancing size and composition is challenging

Our challenge has been to maintain an equilibrium between the workflow requirements of a program with a large portfolio and the intimacy (and associated effectiveness) of a small CoP. As the number and scope of projects increased and clinician–educators became busier, new members were introduced into the clinician–educator program to assist with the workflow. This presented a challenge for the associate director to find and hire new members that would bring needed skills to the program and yet would complement and integrate into the CoP. The democratic, self-selection of a CoP presents unique challenges when expanding human resources. Simply hiring a new individual (regardless of the educational expertise and academic track record) without considering the relational elements of adding a new individual could potentially cause dysfunction and, hence, threaten the effectiveness of a CoP.

Equality of skills and uniformity of tasks is not the goal

By design, the first clinician–educators had complementary educational skills and experience. Certainly, common expertise in the fundamentals of medical education was shared across the clinician–educator program. The absence of a shared core of educational expertise would have prevented the program from achieving its goals and obstructed the formation of a shared culture that is the foundation of a CoP. However, the clinical background and the areas of educational subspecialization among the clinician–educators differed. As the program expanded, this diversity has been recognized as a strength. For example, the most recent addition to the program is a surgeon with expertise in simulation. Thus, a clinical and educational gap within the CoP was addressed.

Additionally, the deliverables are unique to each clinician–educator. The CoP operates using a consensus decision-making process that does not assign a gradient of authority to academic experience or length of service. Neither does each member equally contribute to every project. While the initial model had each clinician–educator equally divided among projects and contributing the same amount of time per week, experience has demonstrated that allowing a clinician–educator to tailor their involvement has permitted an increase in both effectiveness of the CoP and personal fulfillment.

Facilitating communication is essential

Initially, the community was virtual in nature, facilitated via e-mail, shared documents on an electronic portal, and conference calls. However, it was only with the initiation of in-person meetings that the foundation of a CoP was established. Our experience indicates that a minimum of one annual face-to-face meeting is required. Despite technological advances, geographical gaps must be overcome with shared, in-personal time to build the culture of a CoP.

Additionally, our CoP has benefited from a central office that coordinates virtual and in-person meetings, tracks projects, and administers the clinician–educator program. A common node to connect the CoP has ensured that busy individuals do not quickly fall out of synch and that multiple projects effectively connect.

Program evaluation is necessary to avoid both stagnation and misdirection

First, we acknowledge that a formal program evaluation of our CoP has not yet occurred. Certainly, there are challenges in applying traditional program evaluation metrics to the dynamic structure of a CoP. Yet, without reconciling the objectives with the outcomes, an incongruent educational program can arise. One potential evaluative approach for CoPs is to use authentic assessment (11). In the context of a CoP, authentic assessment requires a program evaluation process that:

1. Engages each clinician–educator in the evaluation process
2. Blends the perspective of the individual to the broader picture of the CoP
3. Utilizes multiple tools and samples to provide a textually rich survey

This authentic assessment must be linked to goals of the clinician–educator program, ensuring congruency between the agendas of the CoP and the clinician–educator program. If linkages do not occur, then institutional support for the CoP is threatened. In the coming year (5 years since inauguration), such a program evaluation is planned.

A community of practice (CoP) may run its course

By definition a CoP cannot be institutionalized. This implies that remaining faithful to the self-determined membership of a CoP does not guarantee its perpetual existence. Rather as the educational needs that served as the impetus for the clinician–educator CoP are resolved or shift dramatically in focus, the clinician–educators who form the CoP may change their contributions. Self-determination ensures a self-sustained length of existence. Currently, the clinician–educator CoP is young and healthy. The current structure of our CoP certainly will evolve with respect to its content, process, and membership. At the point where nothing new is developed, the purpose of the clinician–educator CoP will be complete.

Summary

The Royal College of Physicians and Surgeons of Canada clinician–educator program is a vibrant example of a national program contributing to the advancement of medical education. We use a CoP organizational framework to emphasize shared development of new intellectual property. The benefits of the clinician–educator program include: improved educational problem solving, recognition of educational needs and development of new projects, enhanced personal educational expertise, maintenance of professional satisfaction and retention of group members, a positive influence within the Royal College, and a positive influence within other Canadian academic institutions.

Medical schools and teaching hospitals are complex social and educational environments. The educational challenges facing medicine require both the application of established and the development of novel solutions. Social reorganization may be harnessed to the benefit of medical educators, facilitating innovative solutions to educational problems. Our described experience of such a social reorganization – a CoP – suggests that these benefits are not theoretical, but real.

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